

REMARKS

Claims 1-6 are in the application.

Claim 6 has been amended in response to the examiner's objection.

Claims 1-3 and 6 are presently rejected as anticipated by the Frost Incorporated "Heavy-Duty Roller Turn Rollers & Bolts" brochure. As will be pointed out in more detail below, applicant believes that this rejection is due to a misinterpretation of the internal construction of the Frost roller illustrated in the brochure.

A copy of the Frost brochure (one page) is attached to the instant response as Exhibit A. Reference numerals, as discussed below, have been added to assist in the following description.

The illustrated Frost roller (Exhibit A) is shown in longitudinal cross section taken centrally through the roller at its axis 10. The components of the roller within the bearing races include a three-piece spacer having a central tubular part 14 and separate, left and right tubular retaining parts 12 and 16 partially telescoped into part 14. The accompanying Exhibit B is identical to Exhibit A with the addition of crosshatching to show the section through the sidewall of the tubular part 14. Accordingly, a three-piece internal tubular structure 12, 14, 16 is provided which defines a central passage 18 about the central axis 10. The passage 18 receives a roller turn bolt 20 shown in the brochure to secure the roller to the segment bars of the conveyor.

From the foregoing it may be appreciated that the axially extending tubular structure 12, 14, 16 in Frost is not continuous but is, instead, composed of three separate parts. Independent claims 1 and 6, however, call for a **continuous axle tube**, a component that is


neither shown or suggested by Frost's three-part tubular structure. See, for example, Figs. 3, 4, 6 and 7 of this application which shows continuous axle tube 36 presenting opposed ends 38 and 40, resulting in improved isolation of the internal bearing components from excessive loading.

Furthermore, the axially spaced retainers as claimed by applicant are not found in the Frost roller device. As claimed, the retainers are secured to the axle tube with the bearings disposed therebetween as illustrated, for example, in Fig. 6 of the application which shows retaining nuts 58 and 60 threaded on respective ends of the cylindrical axle tube 36 and tightened to the desired pre-load. Accordingly, independent claims 1 and 6 are not anticipated by Frost, nor is there any suggestion in Frost as to how the roller construction could be modified to render claims 1 and 6 obvious.

Dependent claims 4 and 5 are also allowable for the same reasons as set forth above. Furthermore, the Hooper et al reference simply discloses a nut 19 on a shaft 17. There is no axle tube in Hooper.

Accordingly, applicant respectfully requests reconsideration and allowance of claims 1-6 when this application is next reached for attention.

Respectfully submitted,



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# Heavy-Duty Roller Turn Rollers & Bolts

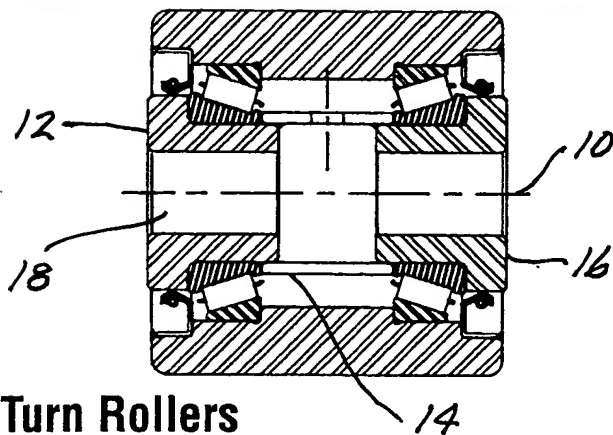
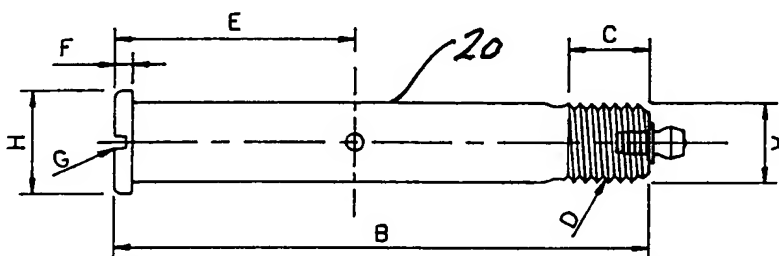


Exhibit A

## Heavy-Duty Roller Turn Rollers

Precision type, tapered roller bearings are designed to withstand heavy loads, shock and thrust. Maximum load carrying capacity of all roller designs. Heat capacity to 250°F (121°C).

| Part Number | Outer Diameter | Bore Diameter | Outer Race Length | Overall Length | Hub Extension | Extension Diameter | Load Rating     | Bearing Style |
|-------------|----------------|---------------|-------------------|----------------|---------------|--------------------|-----------------|---------------|
| 0404000     | 2.81           | .63           | 2.75              | 2.81           | .03           | 1.5                | Consult Factory | Heavy-Duty    |
| 0404050     | 2.81           | .75           | 2.75              | 2.81           | .03           | 1.5                | Consult Factory | Heavy-Duty    |
| 0404200     | 2.81           | .63           | 2.69              | 2.75           | .03           | 1.5                | Consult Factory | Heavy-Duty    |



## Roller Turn Bolts

### 3-Inch Roller Bolt

| Standard Bolt Number | A    | B     | C   | D        | E     | F    | G           | H    |
|----------------------|------|-------|-----|----------|-------|------|-------------|------|
| 0300708              | .500 | 3.500 | .50 | 1/2-13NC | 1.500 | .125 | 3/32 x 3/32 | .687 |
| 0300308              | .500 | 3.3   | .50 | 1/2-13NC | 1.500 | .125 | 3/32 x 3/32 | .687 |

### 4 & 6 Inch Roller Bolt

| Standard Bolt Number | A    | B     | C    | D         | E     | F    | G           | H     |
|----------------------|------|-------|------|-----------|-------|------|-------------|-------|
| 0400308              | .500 | 4.156 | .750 | 1/2-13NC  | 1.875 | .125 | 3/32 x 3/32 | .812  |
| 0401261              | .562 | 4.187 | .625 | 9/16-12NC | 2.062 | .125 | 3/32 x 3/32 | .750  |
| 0425505              | .625 | 4.156 | .500 | 5/8-11NC  | 1.875 | .125 | 3/32 x 3/32 | .812  |
| 0402705              | .750 | 4.562 | 1.00 | 3/4-10NC  | 1.812 | .312 | 1/8 x 1/8   | 1.125 |
| * 0425310            | .625 | 6.125 | 1.00 | 5/8-11NC  | NA    | .500 | NA          | 1.00  |

\*Non-reliable type bolt.

Consult factory for different grease fitting configurations.

# Frost Incorporated

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# Heavy-Duty Roller Turn Rollers & Bolts

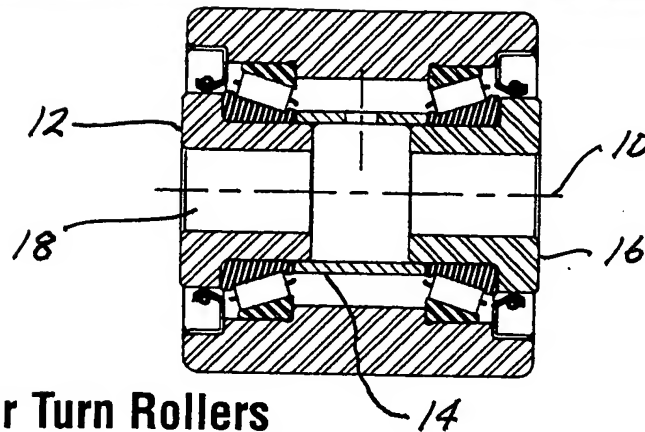
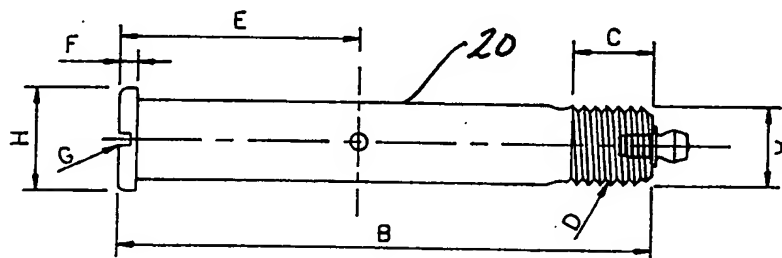


Exhibit B

## Heavy-Duty Roller Turn Rollers

- Precision type, tapered roller bearings are designed to withstand heavy loads, shock and thrust. Maximum load carrying capacity of all roller designs. Heat capacity to 250°F (121°C).

| Part Number | Outer Diameter | Bore Diameter | Outer Race Length | Overall Length | Hub Extension | Extension Diameter | Load Rating     | Bearing Style |
|-------------|----------------|---------------|-------------------|----------------|---------------|--------------------|-----------------|---------------|
| 0404000     | 2.81           | .63           | 2.75              | 2.81           | .03           | 1.5                | Consult Factory | Heavy-Duty    |
| 0404050     | 2.81           | .75           | 2.75              | 2.81           | .03           | 1.5                | Consult Factory | Heavy-Duty    |
| 0404200     | 2.81           | .63           | 2.69              | 2.75           | .03           | 1.5                | Consult Factory | Heavy-Duty    |



## Roller Turn Bolts

### 3-Inch Roller Bolt

| Standard Bolt Number | A    | B     | C   | D        | E     | F    | G           | H    |
|----------------------|------|-------|-----|----------|-------|------|-------------|------|
| 0300708              | .500 | 3.500 | .50 | 1/2-13NC | 1.500 | .125 | 3/32 x 3/32 | .687 |
| 0300308              | .500 | 3.3   | .50 | 1/2-13NC | 1.500 | .125 | 3/32 x 3/32 | .687 |

### 4 & 6 Inch Roller Bolt

| Standard Bolt Number | A    | B     | C    | D         | E     | F    | G           | H     |
|----------------------|------|-------|------|-----------|-------|------|-------------|-------|
| 0400308              | .500 | 4.156 | .750 | 1/2-13NC  | 1.875 | .125 | 3/32 x 3/32 | .812  |
| 0401261              | .562 | 4.187 | .625 | 9/16-12NC | 2.062 | .125 | 3/32 x 3/32 | .750  |
| 0425505              | .625 | 4.156 | .500 | 5/8-11NC  | 1.875 | .125 | 3/32 x 3/32 | .812  |
| 0402705              | .750 | 4.562 | 1.00 | 3/4-10NC  | 1.812 | .312 | 1/8 x 1/8   | 1.125 |
| * 0425310            | .625 | 6.125 | 1.00 | 5/8-11NC  | NA    | .500 | NA          | 1.00  |

\*Non-reloadable type bolt.  
Consult factory for different grease fitting configurations.

**Frost Incorporated**

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